IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	John M. Swope	Examiner:	Yelena Rossoshek
Serial No.:	10/643,665	Group Art Unit:	2825
Filed:	August 19, 2003	Docket No.:	200205326-1
Title:	METHOD AND SYSTEM FOR DETERMINING CONSTRAINTS FOR A PRINTED CIRCUIT BOARD DESIGN MODULE		

DECLARATION OF PRIOR INVENTION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

This Declaration is submitted to establish prior invention of the subject matter of the present patent application. The person making this Declaration is the inventor, John Malvern Swope.

Accompanying this Declaration are Exhibits A, B, and C to establish conception of the subject matter of the present patent application in the United States prior to the filing date July 9, 2002 of the parent application of U.S. Publication No. 2005/0086626 (hereinafter referred to as "Sato") coupled with due diligence from prior to the Sato parent application filing date of July 9, 2002 to the August 19, 2003 filing date of the present patent application (i.e., constructive reduction to practice).

Exhibit A (3 pages) includes a Hewlett-Packard (HP) Invention Disclosure submitted by the inventor John Malvern Swope and received by the HP Legal Department prior to July 9, 2002. In addition, this invention disclosure was witnessed prior to July 9, 2002. This invention disclosure was assigned HP Patent Disclosure No. 200205326 and describes subject matter of the present patent application.

Exhibit B (3 pages, including exhibits) is the Declaration of David Plettner, the Hewlett-Packard patent attorney responsible for preparing the present application, showing due diligence in preparation of the patent application from prior to the Sato parent application filing date of July 9, 2002 to July 22, 2002.

Exhibit C (7 pages, including exhibits) is the Declaration of Patrick G. Billig, the patent attorney responsible for preparing the present application, showing due diligence in preparation of the patent application from prior to the Sato parent application filing date of July 9, 2002 to the August 19, 2003 filing date of the present patent application.

Declaration under 37 C.F.R. § 1.131
Applicant: John Malvern Swope
Serial No.: 10/643,665
Filed: August 19, 2003
Docket No.: 200205326-1
Title: METHOD AND SYSTEM FOR DETERMINING CONSTRAINTS FOR A PRINTED CIRCUIT
      BOARD DESIGN MODULE

From these exhibits, it can be seen that the subject matter of the present patent application was conceived prior to the Sato parent application filing date of July 9, 2002 and was coupled with due diligence from prior to the filing date of the Sato parent application to the filing date of the present patent application (i.e., constructive reduction to practice).

As a person signing below, I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed: _____ Date: _12/16/05_
     John Malvern Swope
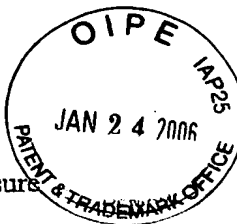
⌐ Enter PD Number

☒

Tag Number: T0002261

INVENTION DISCLOSURE

DATE RCVD: ███████

PDNO: 200205326

ATTORNEY: DAP

*Instructions: The information contained in this document is **HP CONFIDENTIAL** and may not be disclosed to others without prior authorization. Submit this disclosure to the HP Legal Department as soon as possible. No patent protection is possible until a patent application is authorized, prepared, and submitted to the Government.*
Red text indicates a required field.

Descriptive Title of Invention: Method of Determining Constraints for an Autonomous PCB Design Apparatus
Name of Project: N/A
Product Name or Number: N/A
Submitter Location (City): Roseville California
Was a description of the invention published, or are you planning to publish? If so, the date(s) and publication(s):
No
Was a product or prototype including the invention (i) announced, offered for sale, or sold to any third party (for example, customer, supplier, contract manufacturer), or (ii) sold to HP by, for example, a supplier or contract manufacturer, or (iii) is such activity proposed? If so, when and to whom?:
No
Was the invention disclosed to anyone outside of HP, or will such disclosure occur? If so, the date(s) and name(s):
No
If any of the above situations will occur within 3 months, call your IP Attorney or the Legal Department now at 1-898-4919 or 970-898-4919
Was the invention described in a lab book or other record? If so, please identify (lab book #, etc.)

Yes	Various details were sketched on engineering paper.

Was the invention built or tested? If so, the date:
No
Was this invention made under a government contract? If so, the agency and contract number:
No
Description of Invention: Please describe your invention in detail using the following outline. A. Prior solutions and their disadvantages (attach copies of any pertinent product literature, technical articles, patents, etc.). B. Problems solved by the invention. C. Advantages of the invention over what has been done before. D. Description of the construction and operation of the invention. (include appropriate schematic, block & timing diagrams, drawings, samples, graphs, flowcharts, computer listings, etc.). Electronic Attachment
List any pertinent patents material to the invention.
List any articles or references or devices pertinent to the invention. Listed here: This relates to the previously filed patent disclosure entitled "Apparatus For Autonomous Design of Printed Circuit Boards"
Identify Inventor(s): Pursuant to my (our) employment agreement, I (we) submit this disclosure on this date: ███████

Employee No. 00568044	Name: John M. Swope	Telnet: 748-2515	Mailstop: 5596	Entity & Lab Name: 5260-6500 IASL
Employee No.	Name:	Telnet:	Mailstop:	Entity & Lab Name:
Employee No.	Name:	Telnet:	Mailstop:	Entity & Lab Name:

Identify Witness(es): *(It's best to identify the person(s) to whom invention was first disclosed.)*
The invention was first explained to, and understood by, the witness(es) on this date: ███████

Name: Andrew Barr	Employee No. 461531	Telnet: 748-2392	Mailstop: 5596	Entity: 5260-6500 IASL
Name:	Employee No.	Telnet:	Mailstop:	Entity:

Inventor & Home Address Information:

First Inventor's Full Name: John Malvern Swope		Citizenship: USA
Street 4307 Burgess Dr.		

City Sacramento	State CA	Zip 95838
Do you have a Residential P.O. Address? No	Description	

Second Inventor's Full Name:		Citizenship:
Street		

City	State	Zip
Do you have a Residential P.O. Address?	Description	

Third Inventor's Full Name:		Citizenship:
Street		

City	State	Zip
Do you have a Residential P.O. Address?	Description	

Hardcopy Files:

☒

idf_board_synth2.doc

Method of Determining Constraints for an Autonomous PCB Design Apparatus

A. Prior solutions and their disadvantages (attach copies of any pertinent product literature, technical articles, patents, etc.).

Traditionally, auto-routing and auto-placement type software has various algorithms that require constraints from the user that are abstract constraints. By "abstract", I mean they do not necessarily correlate to the circuit design, or board at hand. Rather they are more like algorithm-specific variables that the algorithm uses and relies heavily upon. But since they don't have a correlation to reality, the user doesn't have any determinant way of deriving the variables. He/she is forced to just try something by instinct, and then iteratively modify the variables until the algorithm comes up with something acceptable.

This method is very inefficient for the user. This whole paradigm really seems constructed upon trying to make the software programmer's life easier rather than the user of the software. Often, it takes more time for the user to tweak these "majic" variables than it would take for the user just to do all the work by hand. The end result is often that the benefit of the software is negated and is only really used for simple designs. Ironically, the simple designs are where the software is not really needed that badly.

B. Problems solved by the invention.

When designing an apparatus that autonomously designs printed circuit boards, one problem that arises is the question of which constraints do you allow the user to control. The constraints are ultimately what control the apparatus.

C. Advantages of the invention over what has been done before.

This invention brings the automation apparatus a big step closer to a truly autonomous process. It helps achieve the goal that most Engineers desire, which is to have tools that handle all the low-level "turn the crank" detail so that the engineer can focus on the more challenging, value added work that only humans can solve. It would allow the engineer to directly enter constraints from the design and take the guess work out of the process.

Whereas the prior solution essentially shifts the user's work to a different task (often with added frustration), this invention would actually add a good deal of value by not requiring a lot of extra work out of the user in order to receive a little benefit out of the apparatus.

D. Description of the construction and operation of the invention.
    (include appropriate schematic, block & timing diagrams, drawings, samples, graphs, flowcharts, computer listings, etc.).

In determining which constraints should drive the automation apparatus, first list and understand the very lowest level of details that need to be implemented. For example, trace width, trace spacing, etc.

Then, understand ALL industry respected "rules of thumb" and equations.

Finally, determine the highest level of abstracted constraints are possible to be able to derive the low level details using industry respected equations and rules of thumb. This highest abstracted level of constraints are the constraints the user should adjust. Using the aforementioned example, the user would adjust constraints such as required impedance and maximum allowable crosstalk. Then the apparatus would use industry respected equations and "rules of thumb" to generate all the low level constraints such as trace width and trace spacing.

EXHIBIT B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	John Malvern Swope	Examiner:	Yelena Rossoshek
Serial No.:	10/643,665	Group Art Unit:	2825
Filed:	August 19, 2003	Docket No.:	200205326-1
Title:	METHOD AND SYSTEM FOR DETERMINING CONSTRAINTS FOR A PRINTED CIRCUIT BOARD DESIGN MODULE		

DECLARATION OF DAVID A. PLETTNER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

This Declaration is submitted in support of Declarations of Prior Invention under 37 C.F.R. 1.131 submitted by the inventor of the above-referenced patent application. This Declaration is submitted to establish due diligence in the preparation and filing of the parent of the above-referenced patent application in the United States from prior to the filing date of July 9, 2002 of the parent application of U.S. Publication No. 2005/0086626 (hereinafter referred to as "Sato") to July 22, 2002.

I, David A. Plettner, state as follows:

1. I am the patent attorney responsible for managing the above-referenced patent application (Serial no. 10/643,665, filed August 19, 2003, and assigned HP File No. 200205326-1).

2. I am an Outsourcing Attorney of Hewlett-Packard Corporation since at least 2001.

3. The invention disclosure (attached as Exhibit A to the Declaration of John Malvern Swope) submitted by the inventor John Malvern Swope was received by the HP Legal Department prior to July 9, 2002 and was assigned HP Patent Disclosure No. 200205326.

4. The invention disclosure (attached as Exhibit A to the Declaration of John Malvern Swope) was sent to patent attorney Patrick G. Billig of Dicke, Billig & Czaja, PLLC by Legal Administrator Jerry Dechant for purposes of preparing the above-referenced

EXHIBIT B

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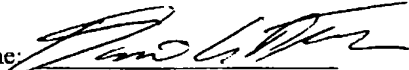
patent application on the subject invention of the invention disclosure on or around July 22, 2002 (*see* Exhibit B1, attached).

As a person signing below, I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name: _____ Date: Jan. 19, 2006

David A. Plettner

2

hp invent

David A Plettner
OUTSOURCING ATTORNEY

+1 (408) 447-3013 Tel
408 447 0854 Fax
david_plettner@hp.com

July 22, 2002

Patrick G Billig
Dicke Billig & Czaja PA
701 Fourth Ave South
Suite 1250
Minneapolis MN 55415

RE: Preparation of Patent Application
    Pursuant to Outside Counsel Procedures Dated November 2001
    HP Reference No.:200205326-1
    Entitled: Method Of Determining Constraints For An Autonomous PCB Design Apparatus
    HP Required Date: Dec. 26, 2002

Dear Patrick:

We would like you to provide a quote of the cost for your firm to prepare a US Patent application based on the HP Invention Disclosure identified above, a copy of which is enclosed.

Your quote should be based on preparing an application including the items noted on the enclosed Outside Counsel Checklist and according to HP's Outside Counsel Procedures referenced above, for filing by our Required Date.

Your quote should be submitted on the enclosed Request for Quote and Engagement Letter Agreement. If your quote is accepted, we will return a fully executed copy of the Agreement to you for your records. The Agreement will not be binding on you or on HP until signed by HP's authorized representative.

If the Agreement is not signed and returned to HP, any bills submitted by you cannot be paid.

Thank you for your assistance in reviewing this invention disclosure. If your review indicates a possible conflict for your firm, you should advise us within one week of receipt of this letter.

Sincerely,

Sent via email by Jerry Dechant for Dave Plettner

David A Plettner

Enc.:   HP Invention Disclosure
       RFQ
       Filing Procedures Checklist

EXHIBIT C

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	John Malvern Swope	Examiner:	Yelena Rossoshek
Serial No.:	10/643,665	Group Art Unit:	2825
Filed:	August 19, 2003	Docket No.:	200205326-1
Title:	METHOD AND SYSTEM FOR DETERMINING CONSTRAINTS FOR A PRINTED CIRCUIT BOARD DESIGN MODULE		

DECLARATION OF PATRICK G. BILLIG

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

This Declaration is submitted in support of Declarations of Prior Invention under 37 C.F.R. 1.131 submitted by the inventor of the above-referenced patent application. This Declaration is submitted to establish due diligence in the preparation and filing of the parent of the above-referenced patent application in the United States from July 22, 2002 to the August 19, 2003 filing date of the above-referenced patent application (i.e., constructive reduction to practice).

I, Patrick G. Billig, state as follows:

1. I am the patent attorney responsible for preparing the above-referenced patent application (Serial no. 10/643,665, filed August 19, 2003, and assigned HP File No. 200205326-1).

2. I am a shareholder of the law firm of Dicke, Billig & Czaja, PLLC since at least 2001.

3. I received the invention disclosure (attached as Exhibit A to the Declaration of John Malvern Swope) for purposes of preparing the above-referenced patent application on the subject invention of the invention disclosure on or around July 22, 2002 (*see* Exhibit B1).

4. Upon receiving the invention disclosure, it was placed in line to be prepared.
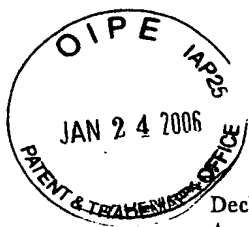
EXHIBIT C

Declaration of Patrick G. Billig
Applicant: John Malvern Swope
Serial No.: 10/643,665
Filed: August 19, 2003
Docket No.: 200205326-1
Title: SYSTEM AND METHOD FOR DETERMINING CONSTRAINTS FOR A PRINTED CIRCUIT
      BOARD DESIGN MODULE

5. During the period between approximately July 22, 2002 and August 19, 2003, the above-referenced patent application was one of a number of backlogged unrelated cases on which I worked reasonably hard during this period and carried out expeditiously. My practice at the time was to attend to the preparation of patent application cases having bar dates first. I attended to the remaining patent application cases (including the above-reference patent application) generally in the chronological order in which the patent application cases were received.

6. The above-referenced patent application was assigned to Christopher P. Kosh, a patent attorney at Dicke, Billig & Czaja, PLLC, for drafting in September 2002.

7. Christopher P. Kosh conducted an interview with inventor John Malvern Swope on October 25, 2002 (*see* Exhibit C1, attached).

8. Christopher P. Kosh drafted the above-referenced patent application from November 5, 2002 until at least March 31, 2003 (*see* Exhibit C1, attached).

9. I reviewed the above-referenced patent application on or about July 3, 2003 (*see* Exhibit C1, attached).

10. A draft of the above-referenced patent application was sent to HP patent attorney David A. Plettner by IP Legal Assistant Kathryn Elseth on July 22, 2003 (*see* Exhibit C2, attached).

11. Declaration and Power of Attorney and Assignment documents for the above-referenced patent application were sent to inventor John Malvern Swope by IP Legal Assistant Kathryn Elseth on July 22, 2003 (*see* Exhibit C3, attached).

12. The above-referenced patent application was subsequently filed with the U.S. Patent and Trademark Office on August 19, 2003.

EXHIBIT C

Declaration of Patrick G. Billig
Applicant: John Malvern Swope
Serial No.: 10/643,665
Filed: August 19, 2003
Docket No.: 200205326-1
Title: SYSTEM AND METHOD FOR DETERMINING CONSTRAINTS FOR A PRINTED CIRCUIT
      BOARD DESIGN MODULE

As a person signing below, I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name: _____   Date: _12-2 1—6 5_
      Patrick G. Billig
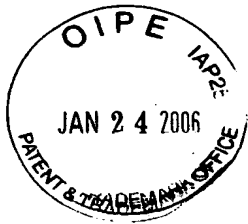
3

DICKE, BILLIG & CZAJA, PLLC

Patent • Trademark • Copyright
ATTORNEYS
Fifth Street Towers • 100 South Fifth Street • Suite 2250 • Minneapolis, Minnesota 55402
Telephone: (612) 573-2000   Facsimile: (612) 573-2005

Hewlett-Packard Company
Financial Administrator - PMHP
Legal Dept. M/S 1068
HP Development Co, LP, PO Box 10301
Palo Alto CA 94303-0890
U.S.A.

Page: 1
09/12/2003
Account No: 300-203101M
Invoice No: 32887

Attn: David A. Plettner

METHOD AND SYSTEM FOR DETERMINING CONSTRAINTS ...

200205326-1

Fees

Date		Description	Rate	Hours
07/30/2002	PAR	Reviewing invention Disclosure; in reviewing and updating request for quote; in updating HP status report.	50.00	1.00
09/26/2002	CPK	Study invention disclosure.	200.00	0.50
10/25/2002	CPK	Study invention disclosure; telephone conference with Mr. Swope regarding invention disclosure.	200.00	2.50
11/05/2002	CPK	Prepare patent application.	200.00	7.00
11/06/2002	CPK	Prepare patent application.	200.00	4.20
11/07/2002	CPK	Prepare patent application.	200.00	2.70
11/08/2002	CPK	Prepare patent application.	200.00	3.30
11/11/2002	CPK	Prepare patent application.	200.00	7.10
11/12/2002	CPK	Prepare patent application.	200.00	6.50
11/13/2002	CPK	Prepare patent application.	200.00	1.50
03/28/2003	CPK	Prepare patent application.	200.00	1.50
03/31/2003	CPK	Prepare patent application.	200.00	1.50
07/03/2003	PGB	In preparation of patent application.	245.00	1.60
08/19/2003	PAR	In preparation of Assignment document; in preparation of Declaration; in forwarding documents for execution; in reviewing application and drawings for accuracy; in preparation of transmittal and calculation of fees; in filing application and related documents at U.S. Patent and Trademark Office; in completion of client checklist; in updating Request for Quote; in updating PracticeMaster re: filing of documents; in reporting		

Hewlett-Packard Company

EXHIBIT C1
page 2 of 2

Page: 2
09/12/2003
Account No: 300-203101M
Invoice No: 32887

METHOD AND SYSTEM FOR DETERMINING CONSTRAINTS ...

200205326-1

		Rate	Hours	
PAR	matter to client.	300.00	1.00	
	In preparation of Information Disclosure Statement; in preparation of PTO-1449 form; in compilation of related art; in preparation of transmittal sheet; in filing documents at U.S. Patent and Trademark Office; in updating PracticeMaster re: filing of documents; in reporting matter to client.	80.00	1.00	
	For Current Services Rendered		42.90	

Expenses

07/15/2003   Miscellaneous expenses

Total Expenses

Advances

05/29/2003   Illustrating fees - patent drawings

07/14/2003   Illustrating fees - patent drawings - revise formal patenet illustrations - Anderson Illustrating

Total Advances

Total Current Work

Balance Due

Task Code Recapitulation

*** Task Code Not Found ***

From: Kathryn Elseth
To: david.plettner@hp.com
Date: 7/22/2003 4:19 PM
Subject: 200205326-1/H300.203.101
CC: Christopher Kosh; Kathryn Elseth; Patrick Billig

Dear David,

Please find attached the **inventor approved, final draft** of the above referenced application and figures. Both the application and the figures are password protected. I will send you the password in another email. We have sent the signature papers to the inventor today.

If you have any questions, please do not hesitate to contact me.

Thank you,

Kathryn Elseth
IP Legal Assistant
DICKE, BILLIG & CZAJA PLLC
Fifth Street Towers, Ste 2250
100 South Fifth Street
Minneapolis, MN 55402
Direct Dial: (612) 573-0667
Fax number (612) 573-2005
Email: kelseth@dbclaw.com

From: Kathryn Elseth
To: john.swope@hp.com
Date: 7/22/2003 4:15 PM
Subject: 200205326-1/H300.203.101
CC: Christopher Kosh; Kathryn Elseth; Patrick Billig

Dear John,

Please find attached a FINAL DRAFT of the above-identified patent application. In addition, please find attached a DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION document and an ASSIGNMENT OF PATENT APPLICATION document. Both documents need to be executed by you for filing with the U.S. Patent and Trademark Office. The Assignment document assigns all rights in the patent application from the inventors to Hewlett-Packard Company.

It is important that you sign and date the Declaration and Power of Attorney document on or before the date that you sign and date the Assignment document.

Due to the timeliness of this matter, please <u>return</u> the signed and dated Declaration and Power of Attorney document and the signed and dated Assignment document to Christopher Kosh via <u>Federal Express</u> as soon as possible. Christopher's address is:

Christopher Kosh
Dicke, Billig & Czaja PLLC
8834 Capital of Texas Hwy. N.
Suite 147
Austin, TX 78759

If you have any questions, please do not hesitate to contact me.

Thank you,
Kathryn Elseth
IP Legal Assistant
DICKE, BILLIG & CZAJA PLLC
Fifth Street Towers, Ste 2250
100 South Fifth Street
Minneapolis, MN 55402
Direct Dial: (612) 573-0667
Fax number (612) 573-2005
Email: kelseth@dbclaw.com

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